

File E28476  
SR9481720-T001

December 27, 2012

REPORT

On

COMPONENT - CONNECTORS FOR USE IN  
DATA, SIGNAL, CONTROL AND POWER APPLICATIONS

TYCO ELECTRONICS CORP  
HARRISBURG PA 17111

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## DESCRIPTION

## PRODUCT COVERED:

USR, CNR Component Connector, Series RAST 2.5 TAB HEADER ASSY, TH, Vertical, Cat. Nos. 1971817 thru 1971820, 1971837 thru 1971840, 1971938, 1971939, 1971994, 1971995, 1971976, 1971977, 1971988, 1971989, 2232141 thru 2232188, 2232277 thru 2232284, 2232329, 2232367 thru 2232401, 2322471, may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 2.5 TAB HEADER ASSY, TH, Vertical, Cat. Nos. 2350434-3, 2350434-4, 2350434-5, 2350434-6, 2350434-7, 2350434-8, 2350434-9, 2350434-0 and 2362614-1, 2362614-2, 2362614-3, 2362614-4, 2362614-5.

USR, CNR Component Connector, Series RAST 2.5 POTTED TAB HEADER ASSY, Cat. Nos. 1-2232960-6, 1-2232960-7, 2-2232960-7, 1-2232960-9, 2-2232960-9, 1-2232962-3, 2-2232962-3, 2-2232960-3, 3-2232960-3, 2-2232963-7, 2-2232960-4, 3-2232960-4.

USR, CNR Component Connector, Series RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load, Cat. Nos. 1971921 thru 1971924, 1971984, 1971985, 2232189 thru 2232214, 2232285 thru 2232288, 2232330, 2232444 thru 2232478, may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 2.5 POTTED TAB HEADER ASSY, Cat. No. 2232960 may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 2.5 POTTED TAB HEADER ASSY, selective load, Cat. Nos. 2232962, 2232963, 2371042 may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 2.5 POTTED TAB HEADER ASSY, INNER WALL, Cat. No. 2371042 may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 5 TAB HEADER ASSY, TH, Vertical, Cat. Nos. 1969738, 1969740, x-2407489-2, x-2407489-3, x-2407489-4, 1971845, 1971846, 1971895, 1971896, 1971946 thru 1971949, 1971954 thru 1971957, 2232008 thru 2232011, 2232000 thru 2232003, 2232016 thru 2232019, 1971962 thru 1971965, 2232024 thru 2232027, 2232289 thru 2232292, 2232043 thru 2232074, 2232298 thru 2232301, 2232511, 2232532, 2232557, 2232559, 2232560, 2232562, 2232563, 2232565, 2232566, 2232568, 2232569, 2232571, 2232572, 2232574, 2232575, 2232577, 2232578, 2232580, 2232581, 2232583, 2232584, 2232586, 2232587, 2232589, 2232590, 2232592, 2232593, 2232595, 2232596, 2232598, 2232599, 2232601, 2232602, 2232604, 2232605, 2232607, 2232608, 2232611 thru 2232682, 2292457, **X-2390868-Y**, 2405963, 2371466, 2371673, 2337101, **X-2390869-Y**, 2405966, 2292458, 2322950, 2324619, 1-2355813-3, **2-2355813-3**, **X-2390877-Y**, **X-2390874-Y**, **X-2392784-Y**, **X-2392771-Y** may incorporate prefix and/or suffix number.

USR, CNR Component Connector, Series RAST 5 TAB HEADER ASSY, TH, Vertical, Cat. No. 1-1969740-4, 2322950-7.

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USR, CNR Component Connector, Series TAB HEADER ASSY, TH, Cat. No. x-2364002-x (x=2-5, means different position numbers, Keycode or latch location).

## GENERAL:

These devices are multi-pole connectors intended for factory assembly on printed wiring boards where the acceptability of combinations is determined by UL LLC. The devices are identified as follows:

\* USR - indicates investigation to **the** United States Standards **as referenced in the Test Record.**

\* CNR - indicates investigation to **the** Canadian National Standards **as referenced in the Test Record.**

## RATINGS:

Series Nos.	Voltage, Vac	Ampere, A (USR)	Ampere, A (CNR)
RAST 2.5 TAB HEADER ASSY, TH, Vertical	50	2	2
RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load	250	6	6
RAST 2.5 POTTED TAB HEADER ASSY, Cat. No. 2232960	50	2	2
RAST 2.5 POTTED TAB HEADER ASSY, selective load, Cat. No. 2232962	250	6	6
RAST 2.5 POTTED TAB HEADER ASSY, INNER WALL, Cat. Nos. 2371042	250	6	6
RAST 2.5 POTTED TAB HEADER ASSY, selective load, only for Cat. Nos. 1-2232962-3 and 2- 2232962-3	250	2	2
RAST 2.5 POTTED TAB HEADER ASSY, selective load, Cat. No. 2232963	250	2	2
Series RAST 5 TAB HEADER ASSY, TH, Vertical	250	10	-
		16	-
		20	20
RAST 5 TAB HEADER ASSY, Cat. Nos. 1969738, 1969740, x-2407489-(2,3,4) (x=0-9), 2292457, X-2405963-Y (X=0-9, Y=1-5), 2371466, 2371673, 2337101, X-2405966-Y (X=0-9, Y=1-5), 2324619, 2292458, 1-2355813-3, 2-2355813-3, <b>X-2390868- Y (X=0-9, Y=2-4), X-2390869-Y (X=0-9, Y=2-4), X-2390877-Y (X=0-9, Y=3,5,7), X-2390874-Y (X=0-9, Y=2-6), X-2392784-Y (X=0-9, Y=2-6), X-2392771-Y (X=0-9, Y=2-6)</b>	250	20	20
TAB HEADER ASSY, TH, Cat. Nos. 2364002	600	30	30

Disconnecting Use - see Sec Gen for required marking

## MODEL DIFFERENCES:

1. RAST 2.5 TAB HEADER ASSY, TH, Vertical is full load, and RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load is selective load.
2. RAST 2.5 TAB HEADER ASSY, TH, Vertical and RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load:

The basic number (consists of seven numbers, other than prefix and/or suffix number) of Cat. No. is indicating different color of housing, plating of contacts and locking construction of housing (for full load only, External Locking or Internal Locking), refer to the following table and the assembly illustrations for details.

Color	Basic Number					
	Assembly, full load				Assembly, selective load	
	External Locking		Internal Locking		External Locking	
	Tin plated	Silver plated	Tin plated	Silver plated	Tin plated	Silver plated
Natural	1971817, <b>2350434</b> , <b>2362614</b> , 2322471, 1971818, 2232329, 2232367	1971837, 1971838, 2232384, 2232385	1971819, 1971820	1971839, 1971840	1971921, 1971922, 2232330, 2232444	1971923, 1971924, 2232461, 2232462
Red	1971938, 1971939, 2232368, 2232369	2232141, 2232142, 2232386, 2232387	2232161, 2232162	2232163, 2232164	2232189, 2232190, 2232445, 2232446	2232191, 2232192, 2232463, 2232464
Blue	2232143, 2232144, 2232370, 2232371	2232145, 2232146, 2232388, 2232389	2232165, 2232166	2232167, 2232168	1971984, 1971985, 2232447, 2232448	2232193, 2232194, 2232465, 2232466
Yellow	2232147, 2232148, 2232372, 2232373	2232149, 2232150, 2232390, 2232391	2232169, 2232170	2231171, 2232172	2232195, 2232196, 2232449, 2232450	2232197, 2232198, 2232467, 2232468
Black	1971994, 1971995, 2232374, 2232375	2232151, 2232152, 2232392, 2232393	2231173, 2232174	2231175, 2232176	2232199, 2232200, 2232451, 2232452	2232201, 2232202, 2232469, 2232470
Grey	1971976, 1971977, 2232376, 2232377	2232153, 2232154, 2232394, 2232395	2231177, 2232178	2231179, 2232180	2232203, 2232204, 2232453, 2232454	2232205, 2232206, 2232471, 2232472
Green	1971988, 1971989, 2232378, 2232379	2232155, 2232156, 2232396, 2232397	2232181, 2232182	2232183, 2232184	2232207, 2232208, 2232455, 2232456	2232209, 2232210, 2232473, 2232474
Purple	2232157, 2232158, 2232380, 2232381	2232159, 2232160, 2232398, 2232399	2232185, 2232186	2232187, 2232188	2232211, 2232212, 2232457, 2232458	2232213, 2232214, 2232475, 2232476
White	2232277, 2232278, 2232382, 2232383	2232279, 2232280, 2232400, 2232401	2232281, 2232282	2232283, 2232284	2232285, 2232286, 2232459, 2232460	2232287, 2232288, 2232477, 2232478

Note: For selective load only, the contact number is as below, and there is one empty pole between two loaded poles.

Contact number = (pole number + 1) / 2

Note: The max. pole number of RAST 2.5 TAB HEADER ASSY, TH, Vertical is 15, and the max. pole number of RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load is 13.

2-1. RAST 2.5 POTTED TAB HEADER ASSY, the basic number of Cat. No. is 2232960, see assembly illustrations I-18 **and I-26** for details.

2-2. RAST 2.5 POTTED TAB HEADER ASSY, selective load, the basic number of Cat. Nos. are 2232962, 2232963, see assembly illustrations I-18 **and I-26** for details.

## 3. RAST 5 TAB HEADER ASSY, TH, Vertical:

The basic number (consists of seven numbers, other than prefix and/or suffix number) of Cat. No. is indicating different color of housing and plating of contacts, refer to the following table and the assembly illustrations for details.

Basic Number		
Color	Assembly	
	Tin plated	Silver plated
Natural	1971845, 1971895 2232043, 2232045 2232532, 2232511, 2232557, <b>2322950, 2324619</b> , 2232611, 2232612, 2232647, 2232648	1971846, 1971896 2232044, 2232046 2232559, 2232560, 2232613, 2232614, 2232649, 2232650
Red	1971946, 1971948 2232055, 2232057 2232562, 2232563, 2232615, 2232616, 2232651, 2232652	1971947, 1971949 2232056, 2232058, 2232565, 2232566, 2232617, 2232618, 2232653, 2232654
Blue	1971954, 1971956, 2232047, 2232049, 2232568, 2232569, 2232619, 2232620, 2232655, 2232656	1971955, 1971957 2232048, 2232050, 2232571, 2232572, 2232621, 2232622, 2232657, 2232658
Yellow	2232008, 2232010 2232063, 2232065, 2232574, 2232575, 2232623, 2232624, 2232659, 2232660	2232009, 2232011 2232064, 2232066, 2232577, 2232578, 2232625, 2232626, 2232661, 2232662
Black	2232000, 2232002 2232059, 2232061, 2232580, 2232581, 2232627, 2232628, 2232663, 2232664	2232001, 2232003 2232060, 2232062, 2232583, 2232584, 2232629, 2232630, 2232665, 2232666
Grey	2232016, 2232018 2232067, 2232069, 2232586, 2232587, 2232631, 2232632, 2232667, 2232668	2232017, 2232019 2232068, 2232070, 2232589, 2232590, 2232633, 2232634, 2232669, 2232670
Green	1971962, 1971964 2232051, 2232053, 2232592, 2232593, 2232635, 2232636, 2232671, 2232672	1971963, 1971965 2232052, 2232054, 2232595, 2232596, 2232637, 2232638, 2232673, 2232674
Purple	2232024, 2232026 2232071, 2232073, 2232598, 2232599, 2232639, 2232640, 2232675, 2232676	2232025, 2232027 2232072, 2232074, 2232601, 2232602, 2232641, 2232642, 2232677, 2232678
White	2232289, 2232291 2232298, 2232300, 2232604, 2232605, 2232643, 2232644, 2232679, 2232680	2232290, 2232292 2232299, 2232301, 2232607, 2232608, 2232645, 2232646, 2232681, 2232682

Note: The max. pole number of plated type is 8.

## NOMENCLATURE:

The Cat. Nos. of Series RAST 2.5 TAB HEADER ASSY, TH, Vertical are designated as follows:

$$\frac{X}{I} - \frac{XXXXXXXX}{II} - \frac{X}{III}$$

I - Prefix number, 1 thru 9, or blank, indicating different construction of housing, refer to Ills. 1, 2, 11, 25 and 26 for details.

II - Basic number, indicating different color of housing, plating of contacts and construction of housing. Refer to MODEL DIFFERENCES for details.

III - Suffix number, 0 thru 9, related to pole number, refer to Ills. 1, 2, 11, 25 and 26 for details.

The Cat. Nos. of Series RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load are designated as follows:

$$\frac{X}{I} - \frac{XXXXXXXX}{II} - \frac{X}{III}$$

I - Prefix number, 1 thru 9, or blank, indicating different construction of housing, refer to Ills. 6, **12**, and 26 for details.

II - Basic number, indicating different color of housing, plating of contacts and construction of housing. Refer to MODEL DIFFERENCES for details.

III - Suffix number, 1, 3, 5, 7 or 9, related to pole number, refer to Ills. 6, 12 and 26 for details.

The Cat. Nos. of Series RAST 5 TAB HEADER ASSY, TH, Vertical are designated as follows:

$$\frac{X}{I} - \frac{XXXXXXXX}{II} - \frac{X}{III}$$

I - Prefix number, 1 thru 9, or blank, indicating different construction of housing, refer to Ills. 7, 10, 13, 14, 15, 17, **24**, and 27 for details.

II - Basic number, indicating different color of housing, plating of contacts and construction of housing. Refer to MODEL DIFFERENCES for details.

III - Suffix number, 2 thru 8, related to pole number, refer to Ills. 7, 10, 13, 14, 15, 17, 17A, **24**, and 27 for details.



## TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC.

Conditions of Acceptability - The following are among the considerations to be made when evaluating the device in the end-use product.

## Interruption of Current

1. These devices are not suitable for interrupting the flow of current by connecting or disconnecting the mating connector.

## Current-Carrying Capability and Current Ratings

2. These devices have been subjected to the Temperature test with the rated currents and maximum temperature values tabulated below.

Series Nos.	Ampere, A	Maximum Temperature, °C (USR)	Maximum Temperature Rise, °C (CNR)
RAST 2.5 TAB HEADER ASSY, TH, Vertical, External Locking	2	31.9	6.9
RAST 2.5 TAB HEADER ASSY, TH, Vertical, Internal Locking	2	32.2	7.2
RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load	6	50.4	25.4
RAST 5 TAB HEADER ASSY, TH, Vertical	10 (Tin plated)	58.5	-
	16 (Silver plated)	56.0	-
	16 (Tin plated)	73.7	-
	20 (Tin plated)	50.9	25.9
	20 (Silver plated)	49.0	24.0
RAST 5 TAB HEADER ASSY, Cat. No. 1969740 (representing 1969738)	20	50.9	25.9
RAST 5 TAB HEADER ASSY, Cat. No. 2292457 (representing 2292458, 2337101, <b>2371466, 2371673,</b> )	20	50.5	25.5
RAST 5 TAB HEADER ASSY, Cat. No. 1-2292457-5 (representing 2292457-5)	20	43.9	18.9
RAST 2.5 POTTED TAB HEADER ASSY, selective load, Cat. No. 2232963	2	38.6	13.6
RAST 2.5 POTTED TAB HEADER ASSY, INNER WALL, Cat. No. 2371042	6	43.6	18.6
<b>TAB HEADER ASSY, TH, Cat. Nos. x-2364002-x</b>	<b>30</b>	<b>54.5</b>	<b>29.5</b>

Series Nos.	Ampere, A	Maximum Temperature, °C (USR)	Maximum Temperature Rise, °C (CNR)
RAST 5 HDR POSITIVE-LOCK, Cat. No. X-2390868-4	20	44.9	19.9
RAST 5 HEADER ASSY, DIN STYLE, TH, VERTICAL, Selective Loaded, Cat. No. 2390877-7	20	43.0	18.0
RAST 5 HEADER ASSY, DIN STYLE, TH, VERTICAL, Fully Loaded, Cat. No. 7-2392771-6	20	46.2	21.2

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## Insulating Materials

3. These devices employ insulating materials with properties as tabulated below at the minimum thickness employed in the connector housing, the suitability of the insulating materials based on the documented values shall be determined in the end-use application. Please note the values specified in the table when multiple materials are indicated represent the minimum values for the group of materials.

Series No.	Insulating Material (#)	Measured Minimum Thickness	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
RAST 2.5 TAB HEADER ASSY, TH, Vertical	A	0.75 mm	V-0	2	0	140	140
RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load							
RAST 5 TAB HEADER ASSY, TH, Vertical	A	0.75 mm	V-0	2	0	140	140
RAST 2.5 TAB HEADER ASSY, TH, Vertical	B	0.75 mm	V-0	0	0	130	130
RAST 2.5 TAB HEADER ASSY, TH, Vertical, selective load	B	0.75 mm	V-0	0	0	130	130
RAST 2.5 POTTED TAB HEADER ASSY 2232960	B	0.75 mm	V-0	0	0	130	130
	C	0.75 mm	V-0	0	0	130	130
RAST 2.5 POTTED TAB HEADER ASSY, selective load 2232962, 2232963	B	0.75 mm	V-0	0	0	130	130
	C	0.75 mm	V-0	0	0	130	130
RAST 5 TAB HEADER ASSY X-2405963-Y X-2405966-Y x-2407489-(2,3,4)	B or D	0.75 mm	V-0	0	0	130	130
RAST 2.5 POTTED TAB HEADER ASSY, INNER WALL Cat. No. 2371042	C	0.4 mm	V-0	0	0	130	130
RAST 5 TAB HEADER ASSY, Cat. Nos. 2371466, 2371673	B or D	0.45 mm	V-0	0	0	130	130
TAB HEADER ASSY, TH, Cat. Nos. 2364002	C	0.75 mm	V-0	0	0	130	130
RAST 5 TAB HEADER ASSY, Cat. Nos. X-2390868-Y, X-2390869-Y, X-2390877-Y, X-2390874-Y, X-2392784-Y, X-2392771-Y	C	0.5	V-0	0	0	130	130
RAST 5 TAB HEADER ASSY, Cat. Nos. X-2390868-Y, X-2390869-Y, X-2390877-Y, X-2390874-Y, X-2392784-Y, X-2392771-Y	B or D	0.5	V-0	0	0	130	130

\*

(#) - Code for Insulating Body Material.

- A. Tyco Raw Material # 2136325
  - 1. Dielectric strength (kV/mm): 11
  - 2. CTI: 1
  
- B. Tyco Raw Material 2136488
  - 1. Dielectric strength (kV/mm): 8
  - 2. CTI: 1

- C. Tyco Raw Material 2136919
  - 1. Dielectric strength (kV/mm): 18
  - 2. CTI: 1
  
- D. Tyco Raw Material 705999
  - 1. Dielectric strength (kV/mm): 8
  - 2. CTI: 1

\*

#### Mating Connectors

- 4. These devices have only been assessed for use with specific types of connectors within their product family. They have not been assessed to operate with any other similar devices from any other manufacturer.

#### Miscellaneous

- 5. The enclosure of the device has live parts that may be exposed to user contact when the connector is energized. The device is suitable for use only within an acceptable enclosure.